

CLAIMS

I/we claim:

1. A wheel end assembly comprising:

a bearing shaft having an inboard end and an outboard end;

a wheel hub mounted onto said outboard end of said bearing shaft;

a detachable outboard joint mounted onto said inboard end of said bearing shaft;

a wheel bearing mounted onto said bearing shaft between said inboard end and said outboard end;

said inboard end of said bearing shaft including a flange portion, said flange portion providing a support to keep said wheel bearing positioned onto said bearing shaft and to induce a pre-load into said wheel bearing such that said pre-load is maintained on said wheel bearing when said outboard joint is removed from said wheel end assembly; and

a support hub positioned between and interconnecting said detachable outboard joint and said bearing shaft, said support hub having a shaft portion engaging said bearing shaft and an engagement portion extending axially from said shaft portion.

2. The wheel end assembly of claim 1 wherein said wheel bearing comprises:

a knuckle flange adapted to connect said wheel end assembly to a vehicle, said knuckle flange having an inner diameter that defines an inboard outer race and an outboard outer race;

an inboard inner race and an outboard inner race supported on said bearing shaft; and

a plurality of bearing elements, a first portion of said bearing elements being positioned between said inboard outer race and said inboard inner race and a second portion of said bearing elements being positioned between said outboard outer race and said outboard inner race;

said flange portion of said bearing shaft engaging said inboard inner race to support said wheel bearing and to induce a pre-load into said wheel bearing.

3. The wheel end assembly of claim 2 wherein said outboard inner race is integrally formed within the bearing shaft.

4. The wheel end assembly of claim 1 wherein said wheel hub includes a brake rotor having a braking ring, said braking ring and said brake rotor being integrally formed with one another.

5. The wheel end assembly of claim 1 wherein said wheel hub and said bearing shaft are integrally formed with one another.

6. The wheel end assembly of claim 1 wherein said outboard joint includes a bell housing, said bell housing having a narrowed neck portion defining a bell housing inner surface, said bell housing inner surface having a polygon shape, said engagement portion of said support hub including an outer surface having a polygon shape corresponding to said polygon shaped bell housing inner surface such that said bell housing engages said engagement portion of said support hub and rotationally locks said bell housing and said support hub to one another.

7. The wheel end assembly of claim 6 wherein said outer surface of said engagement portion of said support hub has outwardly extending teeth and said inner surface of said neck portion of said bell housing has inwardly extending teeth that engage said outwardly extending teeth of said support hub to rotationally lock said bell housing to said support hub.

8. The wheel end assembly of claim 6 wherein a notch extends circumferentially around a portion of said outer surface of said engagement portion of said support hub and said bell housing includes at least one window formed within said narrowed neck portion, said wheel end assembly further including a retaining clip inserted through said at least one window and engaging said notch of said support hub to secure said bell housing to said support hub.

9. The wheel end assembly of claim 6 wherein a notch extends circumferentially around a portion of said outer surface of said engagement portion of said support hub and a groove extends around said bell housing inner surface, said wheel end assembly further including a retaining ring positioned within said groove within said bell housing, said retaining ring engaging said groove and said notch of said support hub to secure said bell housing to said support hub.

10. The wheel end assembly of claim 1 wherein said shaft portion of said support hub includes a splined outer surface that engages an inner surface of said bearing shaft to rotationally lock said support hub to said bearing shaft.

11. The wheel end assembly of claim 1 wherein said shaft portion of said support hub includes an outer surface having outwardly extending teeth and said bearing shaft includes an inner surface with inwardly extending teeth that engage said outwardly extending teeth of said support hub to rotationally lock said support hub to said bearing shaft.

12. The wheel end assembly of claim 1 wherein said shaft portion of said support hub includes a polygon shaped outer surface and said bearing shaft includes a polygon shaped inner surface corresponding to said polygon shaped outer surface of said support hub such that said support hub is rotationally locked to said bearing shaft.

13. The wheel end assembly of claim 1 wherein said shaft portion of said support hub includes a threaded inner diameter, said wheel end assembly including a threaded fastener engaging said threaded inner diameter of said support hub to secure said support hub to said bearing shaft.